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## EDITORIAL DEPARTMENT NOTE

The first two articles in this issue of the *Bulletin* were prepared for a meeting of the Newark Chapter devoted to a consideration of the relative merits of job costs and standard costs under various sets of conditions. As we approach the reconversion and postwar periods, many companies will be faced with the problem of deciding what type of cost system will best meet their needs under new and changing conditions, as well as the details of the cost accounting plan. These two articles should be of help in pointing out the factors which need to be given consideration in the selection and development of a plan.

The author of our first article, F. G. Shupp, is Treasurer of Breeze Corporations, Inc., of Newark, N. J., manufacturers of aircraft accessories and parts and special equipment for the armed forces. He is a C.P.A. of New York and New Jersey and before joining his present Company was associated for 10 years with the Newark office of Haskins & Sells.

Our second article is by T. R. Elsman, Assistant Controller of the Monroe Calculating Machine Co. of Orange, N. J. Educated at Pace Institute, Mr. Elsman gained his early accounting experience with the Packard Motor Co. of New York. He has been with Monroe for the past 14 years. A member of the Newark Chapter since 1939, he is at present serving as Chapter Director of Employment.

Our third article, reviewing the withholding provisions of the tax law which becomes effective on January 1, 1945, is by E. H. Baker, Office Manager and Chief Accountant of the National Enameling & Stamping Co., Granite City, Ill. Trained at the University of Illinois, Washington University, and La Salle University, Mr. Baker was employed by the Wagner Brewing Co. and the Illinois Power Co. before joining his present Company.

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Articles published in the *Bulletin* present many different viewpoints. In publishing them the Association is not sponsoring the view expressed, but is endeavoring to provide for its members material which will be helpful and stimulating. Constructive comments are welcomed and will be published in the Forum Section of the *Bulletin*.

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DECEMBER 15, 1944

# Job Costs or Standard Costs
# Factors Influencing Selection

## I

## JOB COSTS FOR AN AIRCRAFT PARTS MANUFACTURER

By F. G. Shupp, Treasurer,
Breeze Corporations, Inc., Newark, N. J.

IN determining the most appropriate system of cost accounting for a manufacturing concern, a great variety of factors must be taken into consideration. These factors are as variable as the products manufactured and the manufacturing methods used. I shall deal only with the problems that confronted the Company with which I am associated, a manufacturer of aircraft parts and accessories.

When we laid out our present procedures in 1940, our primary objective was to provide a system that would give us prompt and accurate information for the preparation of reliable financial statements and for the usual other purposes for which costs are required. In this connection, the account most vulnerable to incorrect valuation on the balance sheets of manufacturing concerns is the inventory account. An overstatement may cause unnecessary tax and renegotiation liabilities; an understatement may result in underwriting sales contracts at too low a price. With a well-designed job-cost system properly tied in with the general books, either of these conditions should be avoided.

### *Products*

Breeze Corporations, Inc., is engaged in the manufacture of a variety of items, such as ignition harnesses, flexible metallic conduit, electrical connectors, cartridge engine starters, and miscellaneous aircraft parts and accessories. Prior to 1942, we manufactured stainless steel doors and hatches and library book shelves. Since the beginning of the war we have also manufactured secret devices for the Signal Corps, face-hardened armor plate for aircraft, and gun mounts and similar items required by the Government. As a

result of these differences in products manufactured, our manufacturing facilities and departments have been undergoing a constant change, new departments being established and later abandoned when products or contracts were dropped. Even those products that we have been manufacturing during this entire period are not uniform, but are subject to numerous engineering and design changes for they are especially built for the engine or plane for which intended. Thus, under a standard cost system, we would have found it necessary to work out a cost for practically every sales order received.

We also have been confronted with the problem of a constant increase in our backlog of sales orders. At the end of 1939, our blacklog was $3,000,000; in 1940 it was $12,000,000; in 1941 it was $19,000,000; and in 1942 it had reached $40,000,000. Under standard costs it would have required quite a staff for our accounting department to have kept up with the constant move and change occurring in our manufacturing departments, and I dare say our factory costs would have been practically unpredictable.

Another factor which we took into consideration was that our contract with the union would not permit us to introduce a piecework or bonus system of wage payment. Thus we were barred from using a standard labor cost plan for avoiding the labor waste common to most plants not paying workers extra pay for extra efficiency. Of course, the increased earnings were likewise lost to the individual workers.

*Reflecting Changing Costs Under Job and Standard Costs*

Under a standard cost system, changes in raw materials, engineering design, production methods, etc., must be reported promptly to the accounting department for a recomputation of the standard cost of substantial misstatements in the accounting records of the corporation may result. I have in mind one concern whose accounts I audited a few years ago that made a very substantial overstatement of the value of the inventory which opened the year under audit. The two principal raw materials entering into their products had declined in cost from 20 to 25 per cent since the time that the majority of the standard costs had been computed. The decreased cost never had been given effect in the standards. The cost accountant stated that he did not have the necessary personnel to re-

calculate the thousands of items in the cost book. It probably never occurred to him that he could have made an over-all calculation and provide an adequate reserve at the time of price decline!

With the constant hiring of new help and losing of trained employees to the Army and Navy, the feature of personnel is extremely important when considering standard versus job costs. Trained and seasoned people realize the importance of keeping standard costs up to date, but during these times, with engineering and production personnel concentrating on quantity and quality of production, they are apt to neglect to report changed conditions promptly. On the other hand, since job costs reflect the conditions actually existing and occurring at the time of manufacture, the job-cost system provides an automatic means of reflecting those conditions in the cost finally determined.

One other important feature that favored the use of a job-cost system in our plants was that a great many of our component parts were manufactured in part by us and in part by subcontractors. There were, of course, wide variations in costs in these articles since we are concentrating on quantity, quality, and delivery dates rather than prices. In addition, there are wide fluctuations in prices by reason of changes from hand method of manufacture to lathe work and finally to screw machine work.

*Accounting for Material*

I do not want to take space in explaining in great detail our method of keeping our job costs. Standard cost systems vary greatly when we compare the systems employed by various companies. However, job cost systems are fairly uniform in principles, the major differences being in mechanics. There are, however, certain features of our system which may be of general interest.

Our requisition on stores—or bill of material, as we term it—is written up in triplicate by the production planning department from the engineering parts list. This parts list shows the parts or raw materials required to make one of the items called for by the manufacturing order. Appropriate columns are provided for storekeepers to show quantities issued. Materials not immediately put into process against the manufacturing order are reported by stores on a "Back Order Bill of Material" at the time the additional materials are issued. The third copy of the bill of material becomes

our work in process ledger, and the reverse side of this card is used for posting labor. When the job is closed, the comparison of the materials issued with the standard requirements is automatic since the standard materials are shown on the bill of material by the production department at the time of the original writing.

*Accounting for Labor*

In accounting for labor, the time employed on each job or expense class is reported to the cost department on conventional time tickets. The total hours on these tickets are agreed with the in-and-out time cards for each day. We use different colored tickets for direct and indirect labor, and by extending the two colors separately and obtaining separate totals, we secure totals for labor in process, indirect labor, and total labor for each day. This enables us to post the labor tickets immediately to the proper manufacturing order or expense classification. The total dollar control thus established is agreed with the payroll paid at the end of the week and, except for fractional cent adjustments of an insignificant amount, there have been no differences in this control over a period of years.

*Accounting for Overhead*

Our factory overhead is absorbed on the basis of a percentage to direct labor. In fixing the rate, we try not to include any "period costs." To the extent that they relate to production they are charged to the cost of sales in the period in which incurred. It is important to remember the basis of the inventory valuation on the balance sheet, which in our case is the lower of cost or market. To have these period costs included in the overhead rates would have the effect of including in the inventory a proportionate share of such costs, which might state the inventories at values in excess of replaceable values.

Some accountants object to a job-cost system because it does not provide the necessary information promptly enough. We invariably close out our cost of sales by the tenth of the month, and our financial statement has always been ready for the Board of Directors when they meet on the third Tuesday of the month. One reason for lack of delay is that we post the labor tickets daily. Another reason is that our production planning department will not issue a manufacturing order for a quantity that will require more

than thirty calendar days to complete. This enables them to maintain a better control over the jobs in the shop, and it also helps us in closing our manufacturing orders promptly.

I also question the claim of some accountants that a job-cost system is more costly to operate than a standard. This may be true where the manufacturing operations are fairly repetitious and where there are not numerous drastic changes in conditions. In this connection, I think it would be well if someone would undertake the study of the costs of producing accounting data, as I have found there is a distinct lack of any authoritative statistics on this subject. It seems that relative costs of various systems are matters of individual opinions not supported by scientific accumulation of facts. However, I can say that the number of people in our accounting department has never been as much as 3 per cent of our total number of employees, and I include in accounting department personnel not only people working on cost and payrolls, but also those on accounts receivable, accounts payable, and general accounting. We pay no rent for machinery, and our investment therein is nominal for a concern doing an annual business of $45,000,000.

*Inventory Valuation*

During the year, we arrive at a total inventory valuation on our books by charging our actual over-all costs to our inventory control account and by relieving this account of our sales at the cost arrived at through out job-cost system on a first-in, first-out basis. The adjustment to reflect this book inventory at the physical inventory valuation was less than one-half of 1 per cent on an inventory taken fifteen months after we started our system.

Our corporation, as is true of so many in these times, has an inventory of approximately double its net worth. It is necessary to carry this relatively high inventory in order to maintain our present sales volume. This inventory can only be used for sales contracts which we have undertaken, largely because of the fact that aircraft customers will have a very substantial inventory of our products at the end of the war, if we measure their inventory by peacetime requirements. It is therefore extremely important that we be prepared to identify our inventory against specific sales contracts when the present war is over. And, it is of equally great im-

portance that we be able to substantiate the costs on which our cancellation claims will be based. It seems to me that these costs are more readily susceptible of audit where a job-cost system is used for the reason that the particular lot can be tied in with a manufacturing order and the manufacturing order in turn tied in with a definite sales contract. Of course, regardless of the system of accounting employed, there will be numerous differences of opinion between a contractor and a contracting officer when it comes to the allocation of costs to a given contract. However, under a job-cost system, those differences can generally be confined to problems surrounding the allocation of overhead to the particular sales contract and should not take in questions of material or labor charges.

*An Illustration of Dangers in Inaccurate Costs*

A year or so ago one of our subcontractors stated that he was losing money on the work being done for us. He presented a claim based on material, labor, burden, and general administrative costs on his business with us on an over-all basis. This showed that his production costs for a six-month period were $170,000, for which he received only $166,000. We requested that he furnish us with a statement of operations for the same period, as shown by his general books, and when he presented us with this statement, it did show a loss. We accepted his material and labor costs without question, but found that his burden was actually 79 per cent, whereas he was charging us with about 96½ per cent. He was also charging us with general and administrative expense at 15 per cent, whereas his financial statement showed an experience of 6.1 per cent.

After applying the correct percentages, we found that his costs were only $140,000 instead of $170,000 as claimed by him, so that he actually had made a profit of 15¼ per cent on our business. Naturally, we could not entertain his claim. However, from his statement, there were some products on which he was losing money, but apparently he was not able to tie it in with the particular products.

This manufacturer will be in an unfortunate situation when he applies his charges for cancellation, because the contracting officers will cut down his claims for erroneous overstatements of costs, but

cannot increase his claims on those contracts on which he has shown an erroneous understatement of costs.

Regardless of the method employed for determining costs, the primary consideration is that the cost accounts be tied in with the general books and that proper adjustments are made to reflect the unit cost of the products sold on an actual basis.

## II

## STANDARD FOR COST CONTROL AND COST DETERMINATION

**By T. R. Elsman, Assistant Controller,**
**Monroe Calculating Machine Co., Orange, N. J.**

THIS is the story of one company's experience in the development of a cost system for peacetime operations and the modifications made in that system for wartime operations. The normal peacetime products of this company comprise dozens of different basic models and hundreds of deviations of the basic models. Each model contains from 1,500 to 3,600 individual parts. The war products of this company consist of approximately two dozen different instruments for aircraft and several other large instruments which are used by several branches of the Army and Navy. The number of individual parts in each war product runs from 200 to 2,000. In addition, odd lots of parts are produced for other war contractors.

In developing the system some accepted accounting concepts were disregarded. It was recognized early in the development of the system that the best product cost that could ever be obtained would be nothing more than a good approximation.

### *Actual Costs Not Possible*

It is disappointing to read in the research bulletins of the N.A.C.A. that more than 50 per cent of the industrial firms surveyed by the Association use an actual cost system. It is not only disappointing, but amazing, when we all know that a true actual cost cannot be ascertained. Any number of costs can be developed by different accountants on the same products with the same set of cost figures. Each one would be a good cost depending upon what

use was to be made of it, but none of them would be an actual cost. If accountants all over the country stopped seeking this elusive actual cost, I believe 50 per cent of the accounting clerks and government auditors in the country could be released from their present accounting duties for the production of war materials.

*Objectives*

During the period of planning and installing the system for this company, it was decided that a good cost system should do more than just determine product costs. It should also accomplish the following objectives:

1. Be the principal instrument of management for the control of costs.
2. Be simple and streamlined so that cost figures may be as current as the daily newspapers.
3. Be economical to operate.
4. Supply adequate costs for the development of sales prices (these may be an entirely different set of cost figures from those used in product costing).
5. Provide sufficient internal control to prevent theft, collusion, and serious errors.

It may be well at this point to emphasize the third point—that the system must be economical to operate. Before we tell another department that it is wasteful in the utilization of men, machines, or material, we should be sure our own house is in order. The cost department's operations should be equal in efficiency to any in the organization. In other words, *we* have to go to Church before we tell *others* to go to Church.

It was obvious to us that the objectives we were after in a cost system could not be accomplished except by the use of standard costs. Once this was decided the problem was to set up simple cost records, methods, and procedures, which would measure the efficiency of the plant in terms of equipment, personnel, methods, and operations so as to discover, measure, and control favorable and unfavorable variances from the standards which were established for the manufacturing processes.

Simplicity was to be the keynote of the system, for simple things, whether they be automobiles, machines, accounting records, or sys-

tems, are always the best. Complicated devices or systems require considerably more skilled help in their operation than can be obtained today. Consequently, they tie up the little skilled help which is available on the every-day problems which are continually cropping up, whereas these people should be utilizing their time planning for tomorrow's operations. Recognizing that simplicity was essential and knowing that true costs could never be obtained, the regular product costing was put on a standard cost based on normal costs.

*Standards Based on Normal*

Now, what are standard costs based on normal costs? Simply stated, they are costing rates which, with historical experience and good judgement as guides, have been predicated on a long-range plan. In this type of costing, the standard rates used for costing labor, material, and overhead are seldom revised. Favorable and unfavorable variances from standard are clearly set forth in the accounts. These standard rates may be revised for fundamental changes in the company's activities, such as a merger or consolidation, the acquisition of additional production facilities, or new products. If the company is enjoying a normal growth in sales, the standard burden rates for applying burden to product costs are reviewed and revised if necessary to reflect the new normal. Labor and material standard rates used for costing the labor and material elements of costs are not changed to reflect the inflationary and deflationary effects of prosperity and depression. In other words, the current material specifications and the current labor time standards extended at the normal standard rates are considered to be the normal cost for the labor and material elements of cost.

Standard finished product costs are not revised currently to give effect to daily cost changes resulting from changes in time standards and material quantity changes, inasmuch as they are of a plus and minus nature. Changes in cost resulting from changes in time standards and material specifications on parts and assemblies being produced are tabulated daily and summarized monthly by products. The current standard product costs are determined from these summaries, but no revision is made in finished product costs in the accounting records. The variance between the normal standard costs and the current normal standard costs, whether plus or minus,

is charged or credited to cost of sales monthly, based on the number of models produced.

A monthly report is prepared for management showing current standard product costs in comparison with the standard normal costs to keep them informed of favorable or unfavorable trends in finished product costs. All standard costs of finished products are reviewed once a year, and revisions are made in the labor and material elements of the costs only if the labor time standards and standard material specifications have changed sufficiently to warrant a revision.

I should like to make it clear at this point that many of the variances from normal which developed especially during the last three years are considered period costs and are absorbed into profit and loss during the period of their occurrence. The cost of overtime and night-shift premiums and the training of new help are good examples.

*Normal Burden Rates*

The normal burden rates used in costing the product are plant rates. There are few advantages to be gained by carrying departmental or cost center rates into the books of accounting—first, because a true cost cannot be obtained by doing so, and, second, because equally good costing can be obtained with half the effort. I am not discrediting the development of departmental burden rates. We believe they should be developed, and they have been developed in the system being outlined, but they have not been incorporated into the records with all of the departmental distributions and analysis required. We believe it is more practical in compiling product costs to use departmental labor and burden costs to develop a weighted average of all of the burden applicable to the product and use this as an over-all rate on the direct labor dollars or hours, whichever is desirable. If the labor is priced at standard rates, it makes no difference which base is used. Following this, there should be a further weighting of the labor and burden elements in all products in the same group or class so that the number of plant burden rates will be reduced to a minimum.

It is also essential to have departmental burden rates available for pricing different products which use the facilities of different departments in varying degree. When they are not available and

the company is applying an over-all plant rate in establishing sales prices, you can be sure they are selling some products below cost and making excess profit on others. There is a real danger in quoting prices on various types of products where a single plant rate is used which has not been weighted for departmental overhead costs. It is possible that a company following this practice could be awarded all of the contracts on products which they are selling below cost, and it might be some time before they realized it. Of course, there are other factors to be considered in establishing selling prices when using standard costs. Space limitations prevent our covering them in this discussion.

*Problems Faced in 1940 and 1941*

Before outlining briefly the detailed accounting for labor, material, and overhead under this system, let me review the cost accounting problems which faced the company in 1940 and 1941 when it converted its plant for the production of war products. After reading a considerable number of regulations and contracts and after a little actual experience, it was evident to us that the Government was principally concerned with an accurate determination of costs. Cost control seemed a secondary consideration. Our system and all of our training had emphasized that if we did a good job of cost control with the best possible utilization of our men, machines, and material, we need not worry too much about an accurate determination of product costs, particularly in our inventory accounting. We knew that if all the elements of costs were under control, the product costs would be automatically controlled.

From a little statistical data which is compiled weekly, we can at any time develop a satisfactory current product cost on any product we produce. We did not want to carry in our books of accounting a lot of detailed information with all of the clerical effort involved. We just could not bring ourselves around to the idea of throwing away both the Government's and the company's money on an elaborate cost system in which all of the costs on all jobs would be collected individually from all sorts of records, such as individual job tickets, preferably of different colors, on which the hours would be extended by the employees' actual rate and to this total would be added bonus earnings, overtime premiums, and night shift premiums.

We tried to imagine the battery of clerks we would need in the cost and payroll departments to perform these operations on hundreds of thousands of tickets annually. And what possible purpose could be served by this meticulous care in obtaining an accurate labor cost when the very next step was to come along and add a burden charge which could not possibly be accurate unless we could change the rate every day to keep up with constant changes in cost? If it was all right to average the overhead, why not average the rates paid to the employees.

*The Problem Stated*

We came to the conclusion, after reading the green book and other statements of government agencies, that we would stick to standard costs since they would be accepted by the Government. Our problem was then stated as follows:

1. We had to determine product costs on:
   a. Regular products which were to be continued in production as essential in the war effort.
   b. War products which would be in continuous production for the duration (subcontract work).
   c. War products under prime contracts for limited quantities.
   d. Small parts produced for other war contractors in job lots.
2. We had to retain the control feature in our cost system, retain its simplicity, and have low cost of cost keeping.

The following basis of costing was decided upon for the different products to be manufactured:

1. Regular products—no departure from the present system of standard costs (based on normal).
2. War products which would be produced for the duration —standard costs (based on expected actual costs).
3. War products limited to specific contracts—job order costs (utilizing standard costs based on expected actual).

*Procedures Developed*

The procedures to be followed in our cost accounting were gradually standardized and prepared in written form to guide the

accounting personnel who would be keeping the records. A new set of control accounts were established in the general ledger to obtain accounting control of the production and sale of war products. These new control accounts paralleled the then existing accounts for regular products. Included among them were inventory accounts for raw material, work in process (for the products to be produced for the duration), job orders in process, and finished products. Profit and loss accounts for the war products business were added for sales, cost of sales, factory burden, and factory burden applied. A new cost ledger was opened with detailed subsidiary accounts to support the control accounts in the general ledger. In addition, a separate accounts payable ledger was also opened up for recording all purchases for war contracts.

The raw material inventory in the cost ledger is broken down between various types of material, such as steel, brass, wire, purchased parts, etc. The work in process and job orders in process accounts were each broken down in the cost ledger into the following subdivisions:

1. Standard direct labor
2. Standard direct labor increment
3. Standard material
4. Standard burden applied

*Treatment of Burden*

Factory burden was broken down into the various operating expenses, factory administration expense, maintenance, etc. The account numbers for factory burden items in the regular products burden account were in the 500 series. The same set of account numbers were used for the war products burden account, but in a 900 series. Incidentally, all indirect labor in this system is priced at standard rates. The variances are included in burden in a separate indirect labor variance account.

In the cost ledger for war products as in the cost ledger for regular products, there is no distribution of expense by production departments. For instance, there is but one total for supervision, maintenance, scrap, etc., which is the total for all of the production departments in the plant. There are weekly expense budgets for all production departments which show the cost of operations for each department. These are posted directly from the weekly pay-

roll distribution and other data. Since these budgets represent a detailed analysis of factory operating expenses by departments, there is no point in duplicating the information in the cost ledger.

The problems involved in the accumulation and distribution of costs between the regular and war products were decided as described below.

*Accounting for Material*

Very few standard costs were developed or required for costing raw material. For example, while hundreds of different sizes of flat and round cold rolled steel are used in production, one weighted standard cost is used for all flat sizes and one for all round sizes. The only other standard costs for steel are for odd shapes or special alloys. The same principal is followed with brass and other metals. Standard costs are also established for purchased parts.

In connection with the raw material for regular products, the standards are based on normal costs; on the materials for war products, the standard costs are based on expected actual cost. There are so few standard costs that very little reference to the standard cost cards is necessary in the distribution of purchase vouchers and the posting of material requisitions. They are memorized, and this work is handled with a minimum of clerical effort.

The procedure followed in accounting for raw material is similar to that used by most companies using standard costs. The inventory is charged at standard cost and the variation from standard recorded in a material variance account at the time of purchase. All credits to the inventory for material entering production are priced at standard.

There are two control accounts for raw material inventories—one for the regular products and one for the war products. There are two sets of perpetual inventory records, and there is a physical segregation of most of the material. Where steel strip or steel rods are carried in the same stock room, the material in each inventory is identified by painting the ends in different colors.

Raw material is the smallest element of cost in our product, and therefore it presents no serious problem either in accounting or control. As a matter of fact, in two divisions of our company we carry no raw material inventory. Purchases are charged directly to work in process, eliminating the need for the accounting trans-

actions required in transferring raw material into production. I should like also to mention that standard costs also are used for the costing of all indirect materials, such as supplies and expendable tools.

*Accounting for Labor*

Our accounting for labor starts with job tickets which are prepared by time clerks. In this company time clerks are called factory cost clerks. Time standards have been established for practically all manufacturing operations, and the employees are paid a bonus based on efficiency. The job tickets flow through the factory cost department daily and are utilized for the following:

1. Payroll preparation
2. Payroll distribution
3. Posting a work in process control ledger
4. Posting machine efficiency records

*Payroll*

For payroll purposes, the total daily hours worked and earned for each employee are posted to a simple form of weekly time ticket. No extension for earnings in dollars and cents is made at this time. The hours on these weekly time tickets are totaled at the end of the week and checked against the employees' clock cards. They are then released to the payroll department where the employees' pay is computed on the weekly ticket. From this point on, the payroll is a bookkeeping machine operation. The payroll check, payroll journal, and the employees' earnings record are all prepared simultaneously.

The distribution of the payroll is made in hours. These hours are posted daily to department distribution summaries. The weekly totals of the hours of both direct and indirect labor are costed at standard rates. The variances between standard costs and actual wages paid are charged to labor rate variance accounts.

*Work in Process Control Ledger*

The job tickets are now used for posting a work-in-process inventory control ledger. This is a bookkeeping machine job. For each production order issued, a ledger form is prepared and sent to the factory cost department. All of the direct labor hours re-

ported against each order are posted daily. This is a simple posting of date, operation number, number of pieces completed, and the number of hours charged.

The total hours charged to each order is compared with the standard hours allowed for the number of pieces completed and the efficiency variance is determined. This is the second of the two labor variances developed. Of the total variance from standard labor cost, we know what portion is the result of wage rate variances and what portion is the result of efficiency variances.

The efficiency variances are analyzed on each closed order and classified by type of variance, such as loss of parts between operations, scrap unaccounted for, errors in counting, overbookings, changes in time standards, etc.

I believe there is no other feature of our cost system which has paid the dividends realized through this one. The following are but a few of the benefits we have derived from this system:

1. The excess charges to inventory resulting from inefficiencies can be written off currently.
2. All overpayments to employees and errors in counts are detected.
3. Physical inventory of incompleted work in process is never necessary. The most accurate inventory that could possibly be obtained is already on the records. On every open order the number of pieces completed at each operation is available. When you consider the numerous possibilities for error involved in taking a physical inventory of thousands of individual lots of parts and assemblies with dozens of different persons making the counts and preparing the tickets, I think you will agree that the records just described are the most accurate.

*Machine Efficiency*

The last step in the progress of the job ticket is to use it for the posting of the machine efficiency records. In order that we may know how efficiently we are using our machinery, we maintain a record of the hours each machine is running on production and the hours of set-up time. This information is obtained from the job tickets. The total of production and set-up hours compared with the available hours tells us how efficient we are in the utilization of

machines and is also very useful in our planning for the production of additional products.

*Direct Labor Increment*

I mentioned earlier that standard direct labor increment was considered an element of cost on the war products. Direct labor increment, which consists merely of the direct labor variances plus holiday and vacation pay to direct employees, is applied to standard direct labor on a percentage basis. This charge for direct labor increment, when added to the standard direct labor already charged, brings the labor cost element in inventory to a standard cost based on expected actual.

This simple procedure permits us to meet all the requirements of the exponents of actual costs and to do it with half the clerical effort. You can change the value of your inventory any time it is necessary to reflect changes in wage rates or other costs. You merely change the rate for applying standard direct labor increment to standard direct labor. Nothing else needs to be done; not a single cost record has to be revised.

As far as we are concerned, this feature in the system is the answer to many problems. We retain all of the advantages of standard costs based on normal cost, including in addition to the control features, the ability to compare the operating activities by periods without rate or price variance to distort the picture. We have the figures we need for forecasting manpower requirements, preparing labor and expense budgets with the efficiency and rate variances properly segregated, and supplying the auditors with what they want—costs based on expected actual.

*Accounting for Factory Overhead*

Our policy in the accumulation of factory overhead is to segregate as accurately as possible that portion which is applicable to war products from that which is applicable to the regular line of products. To achieve this as simply as possible, direct charges for manufacturing expenses are made to each division of overhead as far as it is practical to do so. The items which it is impossible to charge directly are charged to regular products overhead as they occur. Once a month the expenses so gathered in regular products overhead are apportioned between the two divi-

sions of overhead on the most reasonable basis available. The amounts apportioned to war products are charged to the overhead accounts for war products and credited to the overhead accounts for regular products.

The apportionment of most of the expenses which cannot be charged direct is on the basis of the production activity of a particular department or the plant, whichever is the most reasonable. Production activity is measured in direct labor hours. Owing to space limitations, it has been impossible to go into detail on the methods followed in this system.

While each of us has individual problems in his cost accounting, I believe those of us who have come a long way in the development of standard costs and budgetary procedures should be very reluctant about making radical changes in his system in an attempt to satisfy the requirements of the exponents of actual costs. Those among us who have spent more time during the war period on cost determination than on cost control had best be prepared to institute a long period of re-education in the postwar period to impress upon the organization that the spending spree is over.

## NEW WITHHOLDING TAX PROCEDURES

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REVISED provisions with respect to income tax become effective on January 1, 1945. The revisions are set forth in the Individual Income Tax Act of 1944. As accountants we are concerned with how the change in this law affects us. In effect there is not a great deal of change for it is still necessary for the employer to collect the money for the Government which is an effort to keep the collection of income taxes from individuals on a current basis. Briefly, there has been a change in the Withholding Exemption Certificate, Form W-4, inasmuch as the employee exemptions have been changed under the requirements of the new law. There is also a change in the Withholding Receipt, Form W-2. The new withholding receipt may be used as a return by anyone earning not more than $5,000 a year, provided not more than $100 is in dividends, interests, or wages from which no tax is withheld.

There is also a change in the graduation of the withholding tables which should satisfy the common complaint of employees that the amount of withholding tax is excessive in some cases.

Let us now review these three changes in the order mentioned.

### *Employee's Withholding Exemption Certificate*

Every employee must sign and give to his employer by December 1, 1944, a new Withholding Exemption Certificate, Form W-4 (Rev.), so that the employer will have time to put the new rates into effect by January 1, 1945. New employees hired between December 1, 1944, and January 1, 1945, will sign two certificates —one for the balance of December, 1944, and the other for the period beginning January 1, 1945.

The new certificate must be on the form prescribed by the commissioner and must indicate the number of withholding exemptions to which the employee is entitled after January 1, 1945. If no certificate is furnished by the employee to his employer, no exemption will be allowed.

*Change of Employee Status*

Whenever an employee's status changes so that he becomes entitled to fewer withholding exemptions than are shown on his certificate, he *must* give his employer a new certificate within ten days after the change occurs. However, if the number of withholding exemptions becomes *greater,* he may turn in a new certificate but it is not required to do so. In other words, he can continue to pay in more money than is required by law.

As under the prior law, an employer is not required to give effect to a new certificate until first payment of wages occurring on or after the following January 1 or July 1, which are "Status Determination Dates." As an example, if an employee gives a new Withholding Certificate to his employer on April 20, 1945, the employer does not have to give effect to the change until first payment of wages on or after July 1, 1945. The employer may, at his option, make the change immediately. In order to give effect to the best employer-employee relationship it is recommended that these changes be made immediately. They do not happen so frequently as to impose a great deal of additional expense upon the employer.

*How to Determine Number of Withholding Exemptions*

Under the new law exemptions are interpreted more liberally. Personal exemptions, credits for dependents, and head of the family concepts are all abolished. In their places is a per capita system of exemption. This means $500 exemptions per person.

Employees will not be required to furnish their marital status. They will indicate only the number of withholding exemptions to which they are entitled. For illustration, John Jones is married and has three children. His exemptions would total five—one for him; one for his wife (if she is not working and claiming her exemption); and one for each of the children.

*Who is a Dependent?*

The abolition of the head of the family concept has eliminated complications such as proving of family control. Similarly, a new definition of dependents removes the necessity of going into such questions of how old the person is or whether he is capable of self-support.

The new act imposes three conditions upon the right to claim a person as a dependent:

1. He must be related to taxpayer within a specified degree.
2. Over half of his support must be furnished by the taxpayer.
3. His gross income must be less than $500.

The degree of relationship mentioned in No. 1 of above must be one of the following:

Children (including adopted or illegitimate children).
Descendents of children.
Step-children.
Brothers and sisters (whole or half blood).
Step-brothers and step-sisters.
Parents, grandparents, great grandparents, etc.
Stepfather and stepmother.
Nieces or nephews.
Aunts or uncles.
Sons-in-law or daughters-in-law.
Fathers-in-law or mothers-in-law.

There is no longer an age limit of eighteen. A child attending college or university who is more than eighteen years old and whose income is less than $500 can be considered as a dependent.

*Receipts to Employees*

Employers are required to furnish employees a written Withholding Receipt on Form W-2 (Rev.), showing wages paid and the amount of tax withheld during the calendar year. This statement must be given to the employee on or before January 31 of the succeeding year; or, if the employment ends before the close of the year, on the day on which the last payment of wages is made.

There is an extension of time up to thirty days for the furnishing of such receipts to employees whose employment terminates before the end of the calendar year. In the case of intermittent employment it is not necessary to furnish a receipt every time employment ceases. Such receipts should be furnished within thirty days from the time it is not expected that the employee will be re-employed.

*Exact Withholding Method*

In general there are two withholding methods, just as under the prior law. Under the 1944 Act these are the exact method and the wage bracket method.

The exact method is no simple matter, for the computation must parallel that of making out the income tax return. That is to say that consideration must be given to the normal tax percentage and the surtax bracket percentages as follows:

1. 2.7 per cent of the excess of the wages over *one* withholding exemption (normal tax 3% less 10%);
2. 18 per cent of the smaller of:
   (a) The excess of the wages over the total withholding exemptions claimed, or
   (b) The amount shown in Column 3 of the table (represents first Surtax Bracket [up to $2,000] 10% off 20%);
3. 19.8 per cent of the excess of the wages over the sum of:
   (a) The total withholding exemption claimed, plus
   (b) The amount shown in Column 3 of the table (represents second Surtax Bracket [$2,000 to $4,000] 10% off 22%).

*Percentage Method Withholding Table*

| *Payroll Period* | *Amount of One Withholding Exemption* | *Maximum Amount Subject to 18%* |
|---|---|---|
| Weekly | $11.00 | $44.00 |
| Biweekly | 22.00 | 88.00 |
| Semi-Monthly | 23.00 | 92.00 |
| Monthly | 46.00 | 184.00 |

As an example of the above:

John Doe is entitled to two exemptions. His weekly salary is $100. Under the percentage method the tax withheld is computed as follows:

| | |
|---|---|
| 2.7% of $89.00 ($100 — $11) | $2.40 |
| 18% of $44.00 ($100 — $22 = $78) | $7.92 |
| 19.8% of $34.00 ($78 — $44) | $6.74 |
| Total (Exact Method) | $17.06 |
| Total (Withholding Table) | $17.00 |

As comparison we show the exact computation under the old method as an illustration of its relative simplicity:

| | |
|---|---|
| Weekly Rate | $100 |
| Less: Family Status Withholding Exemption (Married—claiming all of exemption) | 24 |
| Net subject to 20% Tax | $ 76 |
| | 20% |
| Total Tax Withheld | $15.20 |
| Per Withholding Tax Table | $14.20* |

* Table computed on medium wage of $\$95.00 \frac{(90 + 100)}{2}$

Less exemption of $24.00 @ 20% as follows:

$$\$95 - \$24 \times 20\% = \$14.20$$

A comparison of the new and old method clearly shows that this portion of the withholding tax computation has really become involved. Companies using the exact method would do well to investigate this matter thoroughly and prepare to change over to the wage bracket method at January 1, 1945.

*Wage Bracket Method*

Employers may use the wage bracket withholding method instead of the exact method. Wage bracket withholding is more accurate than under the old law because wage brackets are more closely related to the actual wages paid. Weekly tables under the prior law were graduated in $5 amounts from $10 to $30 weekly wages, and in $10 amounts from $30 to $200. The bi-weekly, semi-monthly, and monthly tables were correspondingly graduated.

Under the new law the weekly tables are graduated on $1 amounts to $60; $2 amounts from $60 to $100; $5 amounts from $100 to $150; and $10 amounts from $150 to $200. The bi-weekly, semi-monthly, and monthly tables were also altered.

In view of the improved wage bracket tables, which are more favorable to the employee, it is obvious that this method will be by far the more popular, in addition to being simpler.

*Returns*

Returns required by the Government on amounts of tax withheld are as follows:

1. Quarterly Return of Income Tax Withheld on Wages (Form W-1).
2. Annual Reconciliation (Form W-3).

On or before the last day of the month following the close of each quarter, a quarterly return on Form W-1, "Return of Income Tax Withheld on Wages," must be filed. Regardless of how many branches a firm may have, there should be only one return made for the company as a whole.

The final quarterly return for the calendar year must include reconciliation (Form W-3) and duplicates of all employee's receipts (Form W-2 [Rev.]). With Form W-3 should be submitted a list in the form of an adding machine tape or some other form showing the items of tax withheld as reflecting on the duplicates of Form W-2.

*Summary*

As a summary of this topic emphasis can be placed upon the changes as they affect our accounting procedure as follows:

1. New Employee's Exemption Certificates must be had on or before December 1, 1944.
2. A new form for Employee's Receipt must be used in reporting earnings for the year and amount of tax withheld.
3. The exact method of withholding will be supplanted by the wage bracket method after January 1, 1945, because of simplicity.